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**CONTROL OF BLACK SCURF AND STEM CANKER  
(RHIZOCTONIA SOLANI KÜHN)  
BY DISINFECTION OF SEED POTATOES**

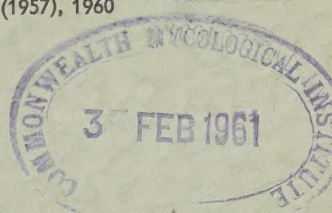
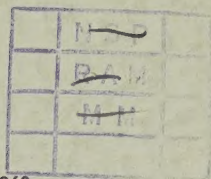
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**M. M. DE LINT en J. H. VAN EMDEN**



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# Control of Black Scurf and Stem Canker (*Rhizoctonia solani* KUHN) by disinfection of seed potatoes\*

## Introduction

In the Netherlands Black Scurf is a common disease and in some parts of our country it is especially of importance in seed potato culture.

Since it was considered doubtful whether seed tuber disinfection could give any results if the tubers were planted in contaminated soil, the application of this method of controlling Black Scurf decreased after World War II. In recent years the incidence of Black Scurf has shown a definite increase. Therefore in 1954 experiments with seed disinfection were started again and four field trials with the variety Bintje were planted in contaminated fields in the "Noordostpolder". The results of these trials have already been published (2). In these experiments the disinfected seed potatoes heavily contaminated with sclerotia produced a crop with far fewer sclerotia. The plants in the treated plots also seemed to have more stems and no reduction in yield was observed. In fact the crop yield obtained from the disinfected tubers was even slightly higher than the yield obtained from the untreated tubers.

percentage of the total number of plants, are given for treated and untreated plots.

Table 1.

Percentage of visible plants about 4—6 weeks after planting and number of stems per plant at about 8—10 weeks after planting for treated and untreated plots.

Year	Number of trials	% of emerged plants		Number of stems per plant	
		treated	untreated	treated	untreated
1955	6	96	71	6.8	5.4
1956	4 <sup>1)</sup>	98	96	6.1	6.4

<sup>1)</sup> In one trial on clay soil no observations were made.

Since at the second counting nearly all plants had emerged, it appears from table 1 that seed disinfection resulted in a quicker emergence in 1955, but not in 1956.

## 2. Number of stems

During the second half of June or the first half of July the number of stems of all plants were counted.

In 1955 and 1956 work on this subject was continued. The results of the field trials will be discussed in this paper together with the results of two other trials already published (1). Seed potatoes of the variety Bintje with a moderate to heavy contamination with sclerotia were dipped for 1 minute in a 0.5% solution of Aardisan, an organic mercurial compound. Treatments were carried out in November and December of the preceding year for all trials in 1955 and for one trial in 1956, while for four trials in 1956 disinfection took place in March of the same year. In both years two experiments were done on sandy soil and the others on clay soil. Tubers were sprouted before planting.

Observations made in the trials included comparison of emergence, number of stems per plant, incidence of plants with the fruiting stage of the fungus, tuber yield and tuber infection.

## Results

### 1. Emergence of plants

As soon as most of the plants in the treated plots had emerged, the number of emerged plants was counted for the first time. Counting was repeated a fortnight later. In table 1 the numbers of emerged plants at the first observation date, expressed as a

• Read by M. M. DE LINT.

the average number of stems per plant for disinfected and untreated seed tubers are also given in table 1.

As appears from table 1 the number of stems was considerably increased by seed disinfection in 1955 and somewhat decreased in 1956.

### 3. Plants with the fruiting stage of the fungus

In these trials no plants with the perfect stage of the fungus on the stems were observed.

### 4. Tuber yield

The crop of most of the field trials was lifted immaturely in the second half of July i. e. the lifting dates for high-classed seed potato crops. In 1955, however, the crop of some trials including those on sandy soil was lifted ripe. The results of the yield analysis will be given separately for crops lifted early and mature, because the requirements with regard to tuber size are not the same for seed and ware potatoes.

#### a) Early lifted crops

Tubers were graded into three sizes, i. e.  $< 35$ ,  $35-45$  mm and  $> 45$  mm in diameter. The results of the yield analyses are summarized in table 2.

Table 2 shows that seed disinfection did not only result in a higher crop yield, but also in a more favourable grading of the tubers, which resulted in a considerable yield increase of the most important





